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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
GROSS, CHRISTOPHER M	

ART UNIT	PAPER NUMBER
1639	

MAIL DATE	DELIVERY MODE
10/13/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/760,085	KOSTER ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER M. GROSS	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) *See Continuation Sheet* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *See Continuation Sheet* is/are rejected.

7)☒ Claim(s) *144* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/23/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,5,6,10,15,17,18,22,25,34,38,43,44,47,55,56,63,66-68,75,77,110,116,137,139,140,143-147,151-153,155,156,160,161,163,164,166-169,171,172 and 175.
Continuation of Disposition of Claims: Claims withdrawn from consideration are 15,18,22,25,43,47,55,56,63,66-68,77,140,143,145-147,153,155,156,171 and 172.

Continuation of Disposition of Claims: Claims rejected are 1,2,5,6,10,17,34,38,44,75,110,116,137,139,144,151,152,160,161,163,164,166,169 and 175.

DETAILED ACTION

Responsive to communications entered 9/9/2010.

Claims 1, 2, 5, 6, 10, 15, 17, 18, 22, 25, 34, 38, 43 ,44, 47, 55, 56, 63, 66, 67, 68, 75, 77, 110, 116, 137, 139, 140, 143-147,151,152,153,155,156,160,161,163,164,166-169,171,172,175 are pending.

Claims 15,18,22,25,43,47,55,56,63,66-68,77,140,143,145-147, 153, 155, 156, 171, 172 are withdrawn.

Claims 1, 2,5, 6, 10, 17, 34, 38, 44, 75, 110,116,137, 139, 144,151,152,160,161, 163,164,166, 169, 175 are examined herein.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/23/2010 has been entered.

Election/Restrictions

Applicant's election of the species of: biotin as the Q sorting function; lysine as the Z trifunctional core; and the azidobenzoyl X photoactivatable group illustrated in the 9/9/2010 reply is acknowledged.

The 8/9/2010 traversal is on the ground(s) that lysine Z cores are not cleavable, thus claims 17 and 5 (as amended) read on the elected species. This is deemed persuasive and accordingly claims 5 and 17 are hereby rejoined.

During a conversation with Stephanie Seidman on 10/4/2010, it was agreed that by the same logic claim 15 does not read on the elected species and further that claims 43 and 140 does not read on lysine without two spacer S groups thus should be withdrawn.

Accordingly, claims 15, 43 and 140 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 8/9/2010.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The present application claims benefit to 60/441,398 filed 1/16/2003 (referred to herein as '398). However, '398 fails to provide adequate support under 35 U.S.C. § 112, first paragraph for the claimed invention as follows:

(A) For ***claim 152***, '398 fails to provide support for X = diazirine.

(B) For ***claim 166***, '398 fails to provide support for determining the function of the biomolecule by pharmacophore, homology models, back-mapping to yeast pathways, simulations, knock-out/knock-in, prospective genotyping, etc.

(C) For ***claim 1***, '398 fails to provide support for Z is a trifunctional group containing 50 or fewer atoms.

If applicant believes this assessment is in error, applicant must disclose where in the specification support for these limitations can be found. Therefore, the earliest effective filing date for claims 1, 2,5, 6, 10, 17, 34, 38, 44, 75, 110,116,137, 139, 144,151,152,160,161, 163,164,166, 169, 175 is the filing date of the case **January 16, 2004**. See also 35 USC 112 first paragraph rejection concerning "new matter" below.

Withdrawn Rejection(s)

The rejection of claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158-161, 163, 164, 166 and 169 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is hereby withdrawn in view of applicant's amendments thereto.

The rejection of claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158-161, 163, 164, 166 and 169 under 35 USC 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention concerning "written description" is hereby withdrawn in view of applicant's amendments thereto.

The rejection of claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158-161, 163, 164, 166 and 169 under 35 U.S.C. 112, first paragraph for scope of enablement is hereby withdrawn in view of applicant's amendments thereto.

The rejection of claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158, 159, 160, 163, 164, 166 and 169 under 35 U.S.C. 102(b) as being anticipated by **Hasegawa et al.** (Hasegawa et al., "Determination of the Binding Site on the Extracellular Domain of Guanyl Cyclase C to Heat-stable Enterotoxin" *J. Biol. Chem.* 1999, *274*, 44, 31713-31719) is hereby withdrawn in view of applicant's amendments thereto.

The rejection of Claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158-161, 163, 164, 166 and 169 under 35 U.S.C. 103(a) as being unpatentable over **Hasegawa et al.** (Hasegawa et al., "Determination of the Binding Site on the Extracellular Domain of Guanyl Cyclase C to Heat-stable Enterotoxin" *J. Biol. Chem.* **1999**, *274*, 44, 31713-31719) in view of **Hasegawa et al. II** (Hasegawa et al., "Expression and Characterization of the Extracellular Domain of Guanylyl Cyclase C from a Baculovirus and Sf21 Insect Cells" *Protein Expression and Purification* **1999**, *15*, 271-281) is hereby withdrawn in view of applicant's amendments thereto.

The rejection of claims 1, 2, 6, 10, 15, 25, 34, 38, 43, 75, 110, 116, 137, 139, 140, 144, 151, 152, 158-161, 163, 164, 166 and 169 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement concerning

"new matter" as set forth in the previous office action is hereby withdrawn in view of applicant's amendments thereto.

The objection to claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim is hereby withdrawn in view of applicant's amendments thereto.

New Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2 ,5, 6, 17, 34, 38, 44,75, 116, 137, 139,144, 151, 152, 160,161,169,175 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Henriksen et al (1991 J. Photochem. Photobiol. A: Chem 57:331-342) in view of **Geselowitz et al** (1995 Bioconjugate Chem. 6:502-506).

The claimed subject matter per claim 1 is drawn to a method for identifying non-targets of a drug, comprising:

(a) selecting a small organic molecule drug whose non-targets with which it interacts are to be identified, and providing a capture compound that presents the drug or a fragment, intermediate, metabolite or prodrug of the drug whose non-targets are to be identified, wherein:
the fragment, intermediate, metabolite or prodrug of the drug interacts with a non-target of the drug;

the capture compound has the formula:

$$Q\text{-}Z\text{-}(X)_m$$
$$\quad\quad\;\;|$$
$$\quad\;(Y)_n$$

X is a photoactivatable group that, upon exposure to light, covalently binds to an amino acid side chain of a protein to effect covalent binding of the capture compound to a protein;

Y is the small molecule organic drug or a fragment, intermediate, metabolite or prodrug thereof for assessing interactions with non-targets;

Q is a sorting function for immobilizing or separating the capture compounds;

Z is a trifunctional group containing 50 or fewer atoms that presents each of X, Y and Q;

m is 1; and

n is 1;

(b) contacting the capture compound with a sample containing non-target proteins that interact with Y, wherein contacting is effected under conditions in which X is not activated and for a sufficient time for interaction between the capture compounds and proteins in the sample to reach equilibrium, whereby Y interacts with drug non-target proteins in the sample;

(c) exposing the capture compound to electromagnetic radiation that activates X, whereby X forms a covalent linkage with protein(s) in the sample that are interacting with Y to effect capture thereof; and

(d) determining the identity of captured proteins, wherein the captured identified proteins comprise non-targets of the drug.

Henriksen et al teach, throughout the document and especially the abstract and scheme 1, a series of photobiotinylation reagents (capture compounds) featuring

azidobenzyol groups, biotin and various tethers suitable for DNA as well as protein labeling. Said azidobenzyol group reads on the X photoactivatable group (elected species), Q sorting function (elected species) and Z trifunctional group, respectively, such as set forth in claims 1a (in part), 2, 6 (in part), 17, 44 (in part), 75, 137 (in part), 151, 175 (in part). On p 337 lines 8-9 referring to p 336 section 2.2 lines 4-5 Henriksen et al teach contacting capture compounds with a sample containing non-target proteins such as set forth in claim 1b and exposing said photobiotinylation reagents to electromagnetic radiation that activates X, whereby X forms a covalent linkage with protein(s) in the sample to effect capture thereof, such as set forth in claims 1c, 152 169 and biological sample of claim 116. On p 340 second full paragraph, Henriksen et al utilize electrophoresis and western blotting to determining the identity of captured proteins, with the photobiotinylation reagents showing greater specificity for cytochrome C and BSA (targets) over ovalbumin (non-target), reading on determining the identity of captured proteins, wherein the captured identified proteins comprise non-targets of the drug of claim 1d and 144 (in so far as a captured biomolecules is interpreted as captured proteins).

Henriksen et al do not teach: selecting a small organic molecule drug whose non-targets with which it interacts are to be identified, and providing a capture compound that presents the drug wherein: the fragment, intermediate, metabolite or prodrug of the drug interacts with a non-target of the drug and Y is the small molecule organic drug, such as set forth in claim 1a; contacting is effected under conditions in which X is not activated and for a sufficient time for interaction between the capture compounds to

reach equilibrium, such as set forth in claim 1b; Z as an amino acid (e.g. lysine) presenting said drug, such as set forth in claims 1a, 6, 44, 139,137,139, 175; Z bearing a reductively cleavable linker L, such as set forth in claims 34, 38; varying the concentration of the capture compound in an effort to determine $K_{D,}$ as set forth in claims 160-161.

Geselowitz et al teach, throughout the document and especially the first paragraph of the text, figure 2 and the left column on p 503, triplex forming oligonucleotides a potential pharmaceuticals investigated using conjugates of the commercially available trifunctional labeling reagent sulfosuccinimidyl3-[[2-[6-(biotinamido)-2-*p*-azidobenzamido)hexanamidolethylldithiolpropionate (SBED) .

Said pharmaceutical of Geselowitz et al is taken as selecting a small organic molecule drug whose non-targets with which it interacts are to be identified, and providing a capture compound that presents the drug wherein: the fragment, intermediate, metabolite or prodrug of the drug interacts with a non-target of the drug and Y is the small molecule organic drug, such as set forth in claim 1a. On p 503 right column lines 8-10, Geselowitz et al teach reactions with said conjugate plus plasmid fragments incubated in the dark at 37 degrees for one hour, thus providing contacting the capture compound with a sample containing non-target proteins that interact with Y, wherein contacting is effected under conditions in which X is not activated and for a sufficient time for interaction between the capture compounds and non-target proteins in the sample to reach equilibrium, whereby Y interacts with drug non-target proteins in the sample of claim 1b (in part). Please note in accordance with paragraph 0021 of the

present published application, "The capture compounds, collections and methods provided herein also permit screening of biomolecules, including but not limited to receptor proteins and enzymes, which are drug targets and non-targets, as defined herein, that interact with pharmaceutical drugs under physiological conditions" (emphasis added), which is interpreted as meaning that non-target proteins are not limited to proteins and may be plasmid fragments, such as the non-target 2.9 kb fragment shown in figure 3 of Geselowitz et al. Alternatively, if said non-target proteins are indeed proteins, a protein solution comprising targets and non-targets is provided by Henriksen et al, as discussed above.

Said SBED conjugate includes: X azidobenzyol photoactivatable groups, Q biotin sorting functions; Z as the amino acid lysine (elected species) presenting said drug, such as set forth in claims 1a, 6, 44,137 (when a=t=b=0),139, 175. Said SBED conjugate also bears a reductively cleavable linker L, reading on claims 34 (when a=t=b=0; L =-NH-CH_2-CH_2-S-S-CH_2-CH_2-CO-) and 38.

In figure 5, Geselowitz et al suggest varying the concentration of conjugate to determine $K_{d,}$ reading on claims 160-161 as well as steps (a)-(d) are performed a plurality of times as set forth in claim 5.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to add a drug to the photobiotinylation reagents of Henriksen et al and/or employ SBED plus measure K_d in the manner of Geselowitz et al and differentiate targets from non-targets proteins using electrophoresis and western blotting per Henriksen et al.

One of ordinary skill in the art would have been motivated to add a drug to the photobiotinylation reagents of Henriksen et al and or employ SBED plus measure K_d in the manner of Geselowitz et al and differentiate targets from non-target proteins using electrophoresis and western blotting per Henrikson because specificity coupled with affinity data is crucial for good drug design: in accordance with MPEP 2141 section III and *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385, 1396 (2007) Applying a known technique (western blotting; K_D determination) to a known method ready for improvement to yield predictable results is obvious.

One of ordinary skill in the art would have had a reasonable expectation of success in adding drugs to the photobiotinylation reagents of Henriksen et al or prepare SBED directed toward proteins because Geslowitz et al explicitly indicate the SBED conjugates may be applied to protein crosslinking in the last paragraph on p 505.

Claims 10, 110, 163, 164 and 166 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Henriksen et al** (1991 J. Photochem. Photobiol. A: Chem 57:331-342) **in view of Geselowitz et al** (1995 Bioconjugate Chem. 6:502-506) as applied to claims 1, 2 ,5, 6, 17, 34, 38, 44,75, 116, 137, 139,144, 151, 152, 160,161,169,175 above, and further in view of **Particelli** (US Application 2002/0182651)

Henriksen et al in view of Geselowitz et al is relied on as above.

Henriksen et al in view of Geselowitz et al do not teach: capture compounds immobilized on a solid support, as set forth in claim 10; MALDI-TOF mass spectrometric

(MS) identification, as set forth in claims 110,163,164; determination of protein function by sequence alignment of claim 166.

Particelli teaches throughout and especially the abstract and paragraphs 0009, 0022, 0026 MS methods using compositions called activity based probes (ABPs) which covalently modify particular proteins in complex mixtures, such as in proteomes as toward drug research.

To identify the covalently modified proteins, Particelli et al advocate: in paragraph 0056 streptavidin-agarose for immobilizing protein or digested peptides crosslinked (covalently modified) with ABPs bearing biotin, reading on claim 10 followed by MALDI-TOF MS (elected species) in paragraphs 0102-0109, reading on claims 110,163,164. Particelli et al discuss protein identification by sequence alignment coupled to MS data in paragraph 0107, reading on claim 166. Said proteome constitutes a biological sample, further reading on claim 116.

It would have been *prima facie* obvious for one of ordinary skill in the art, at the time the claimed invention was made to use the drug conjugates per Henriksen et al in view of Geselowitz et al with entire proteomes evaluated by mass spectrometry in the manner of Particelli.

One of ordinary skill in the art would have been motivated to use the drug conjugates per Henriksen et al in view of Geselowitz et al with entire proteomes evaluated by mass spectrometry in the manner of Particelli because (i) drug toxicity due to cross-reactivity or the origin of side effects may be revealed and (ii) methods such as electrophoresis, such as used by Henriksen et al in view of Geselowitz et al, sometimes

lead to experimental artifacts due to proteolysis, etc. making accurate interpretation difficult, each of which is advantageous according to Particelli in paragraphs 0110, 0033 and 0008.

One of ordinary skill in the art would have had a reasonable expectation of success in applying proteome-wide analysis by mass spectrometry in the manner of Particelli et al toward evaluating the drug conjugates of Henriksen et al in view of Geselowitz et al because each method concerns identification of biotinylated crosslinked proteins for which mass spectrometry constitutes a robust method well recognized in the art.

In conclusion, the claimed invention was within the ordinary skill in the art to make and use at the time the claimed invention was made and was as a whole, *prima facie* obvious.

New Claim Rejection(s) – 35 USC § 112

The following is a quotation of the **first** paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2,5, 6, 10, 17, 34, 38, 44, 75, 110,116,137, 139, 144,151,152,160,161, 163,164,166, 169, 175 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This rejection concerns "new matter"

Claim 1 has been amended to add the limitation that Z contains 50 or fewer atoms, however, the specification as originally filed provided no implicit or explicit support for Z containing 50 or fewer atoms.

Applicants are reminded that it is their burden to show where the specification supports any amendments to the disclosure. See MPEP 714.02, paragraph 5, last sentence and also MPEP 2163.06 I.

MPEP 2163.06 notes “If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).” MPEP 2163.02 teaches that “Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. MPEP 2163.06 further notes “When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not “new matter” is involved. *Applicant should therefore specifically point out the support for any amendments made to the disclosure*.

Claim Rejections - 35 USC § 112

The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5, 152, 169, 175 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships concern Y being linked to the moiety Z in "a different orientations..." in line 3. In particular, it is not clear if how many orientations Y is linked to Z and/or how many if different points of attachment on Z are used to attach Y.

Claim 152 recites the limitation "the biomolecule" in line 3. There is insufficient antecedent basis for this limitation in the claim. *For the purposes of this office action, "the biomolecule" is interpreted as captured target and non-target proteins.*

Claim 169 recites the limitation "the treatment" in line 1. There is insufficient antecedent basis for this limitation in the claim. *For the purposes of this office action, "the treatment" is interpreted as the exposure of claim 1 step c.*

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent

protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 175 recites the broad recitation arylazide, and the claim also recites the azidobenzoyl (structure) which is the narrower statement of the range/limitation.

In accordance with MPEP 2173.02: If the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement, a rejection of the claim under 35 U.S.C. 112, second paragraph, would be appropriate. See Morton Int 'l, Inc. v. Cardinal Chem. Co., 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed. Cir. 1993). As currently written, the metes and bounds of the offending claims are unascertainable.

Claim Objections

Claim 144 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper

dependent form, or rewrite the claim(s) in independent form. Claim 144 is drawn to a captured biomolecule, which is broader than the captured proteins set forth in claim 1 from which claim 144 depends.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER M. GROSS whose telephone number is (571)272-4446. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Low can be reached on 571 272 0951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher M Gross
Examiner
Art Unit 1639

cg

/ Christopher S. F. Low /
Supervisory Patent Examiner, Art Unit 1639